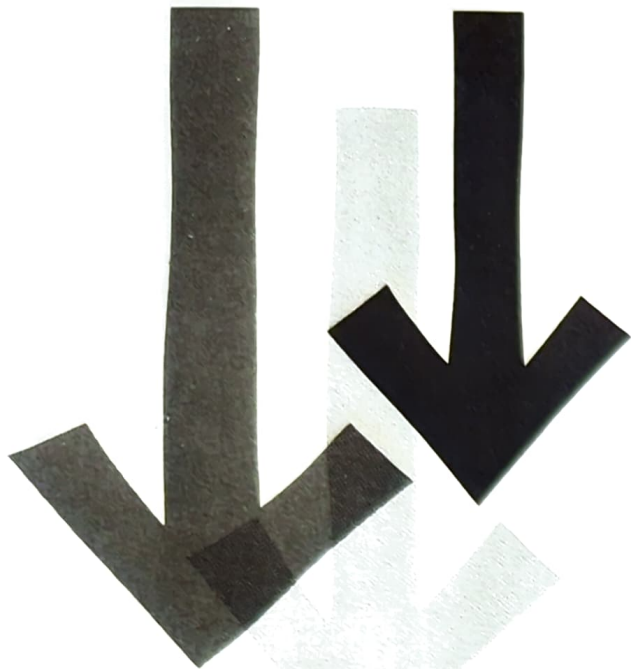
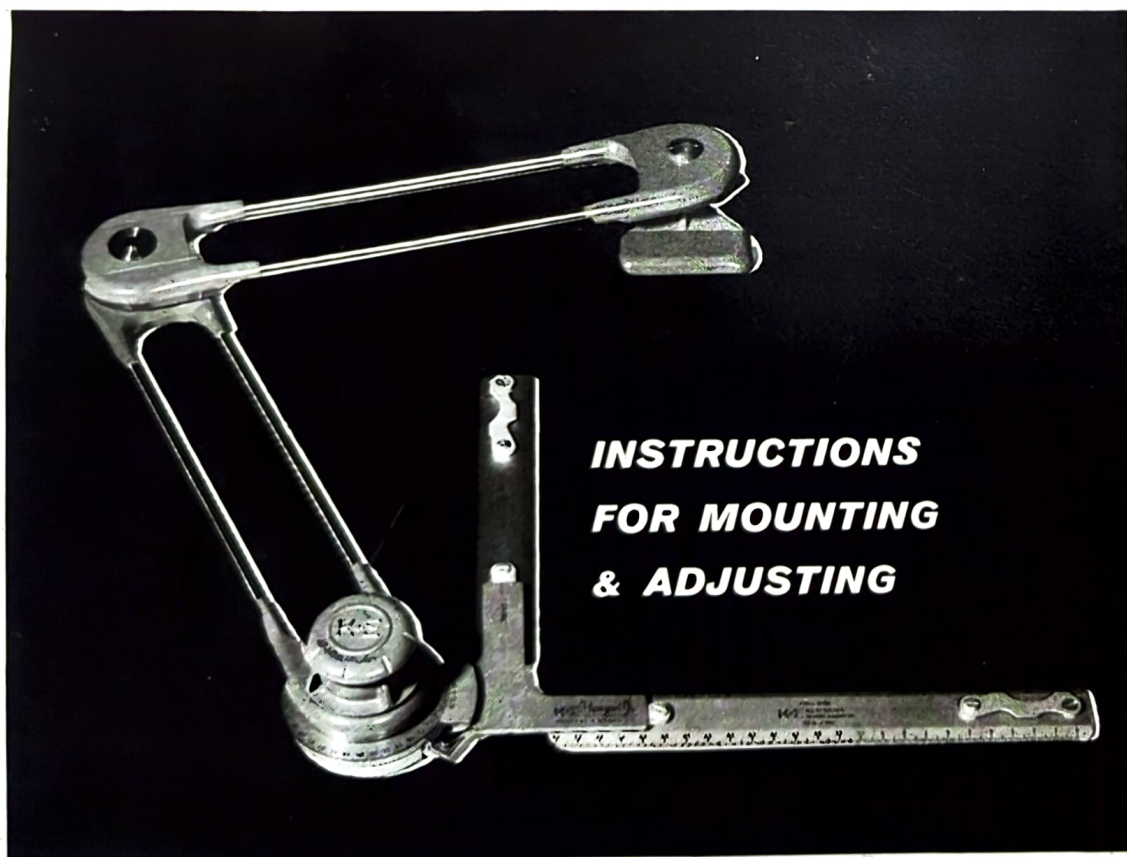




K&E

Paragon[®] Jr.

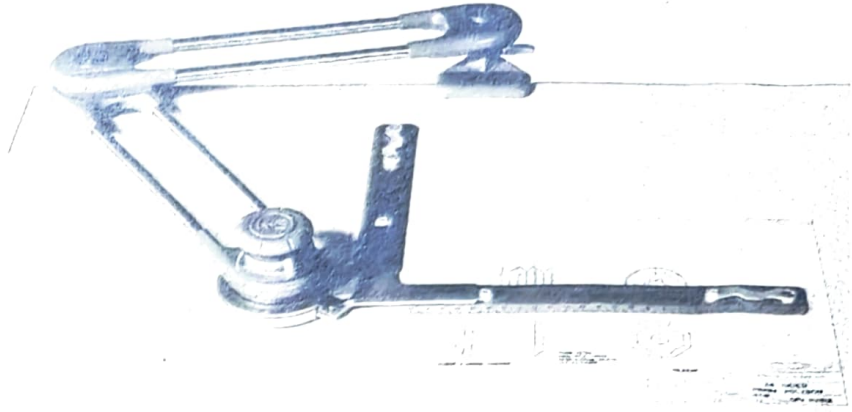


**INSTRUCTIONS
FOR MOUNTING
& ADJUSTING**

KEUFFEL & ESSER CO.

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Paragon[®] Jr. DRAFTING MACHINE

ADVANCED DESIGN

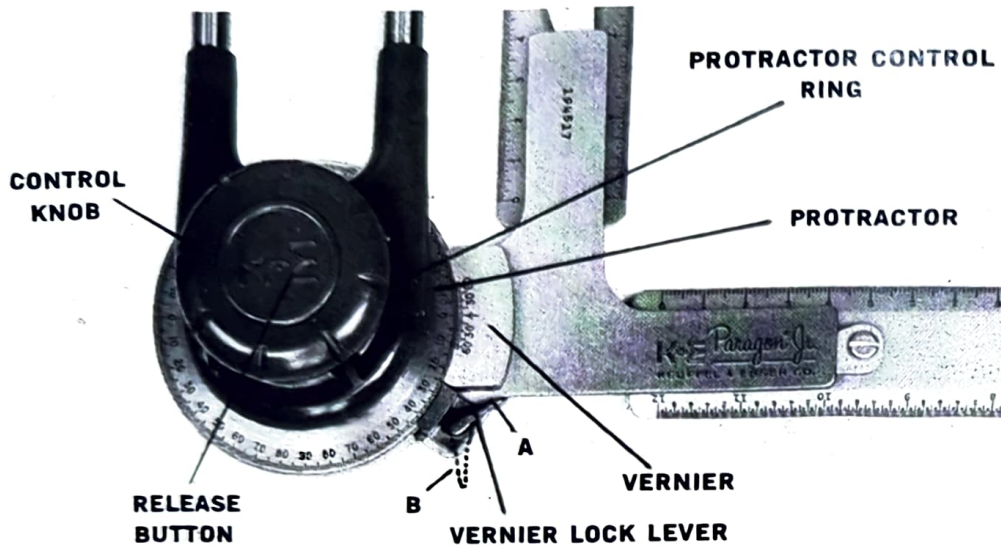
The design of the PARAGON JR. is the result of considerable research and planning for a small but complete drafting machine to provide accurate, professional quality drawings.

The PARAGON JR. is light in weight, small enough to be stored in a drawer when not in use, and can be mounted to any board up to 2 inches thick.

Every detail of the machine reflects sound engineering. Parallel motion is maintained by tempered steel bands revolving around accurately machined drums... The elbows are exceptionally strong aluminum die castings... Both arms are of stainless steel tubing for maximum rigidity... Stainless steel has been used liberally to produce working parts that will not corrode... The knob and protractor control ring are of molded plastic so that they will be pleasant to the touch.

A certain amount of flexibility in the entire assembly permits the head to be raised from the board to a height of 4 or 5 inches, and a convenient parking place has been provided on the anchor so that the head of the instrument will be out of the way when the machine is not in use. This improved anchor takes up a minimum of space on the surface of the board, reducing the unavoidable "dead area" to an absolute minimum.

PROTRACTOR CONTROL HEAD



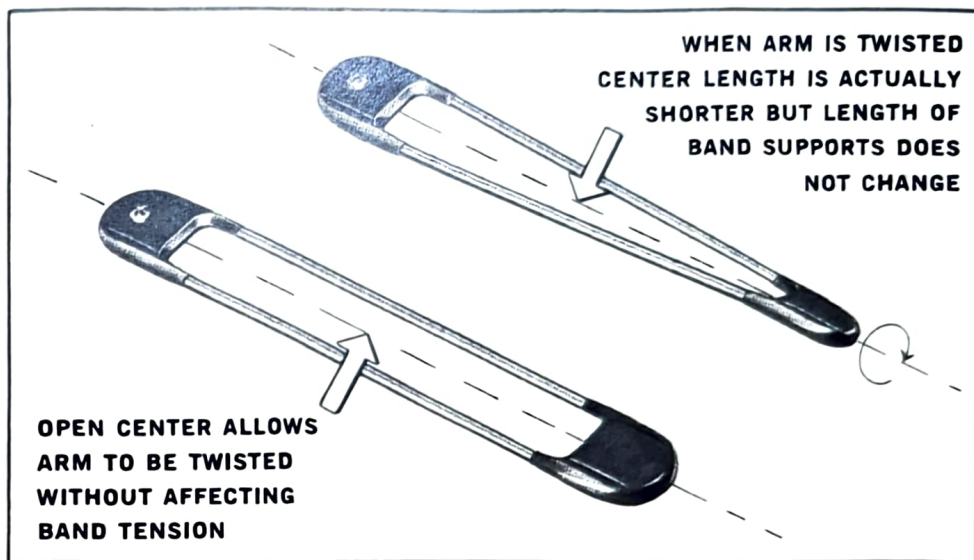
The PARAGON JR. Drafting Machine is controlled entirely with one hand. The protractor control ring is conveniently located just under the knob where it can be reached by all the fingers, regardless of the hand position.

When the vernier thumb lock lever is in position A, a very slight pressure on the control ring in any direction allows the scales to rotate freely. Releasing the control ring automatically locks the vernier at the nearest even fifteen degree position—that is, at 0, 15, 30, 45, 60, 75 or 90 degrees. Ninety percent of your angle work can be done with this simple control.

For intermediate angle settings, the control ring is rotated *all the way* in either direction. This will disengage the automatic stops for the 15° increments and permit the vernier to be set at the intermediate angle. The lock lever, when in position B, locks the setting of the selected angle.

To reengage automatic operation, simply press the release button located at the center of the control knob.

PERMANENT BAND TENSION



The tension of the parallel motion bands is the most important adjustment on any drafting machine. If these bands are too loose they will slip on the drums and the machine will no longer be in adjustment. If they are too tight a severe strain is transmitted to the moving parts, and particularly to the drum bearings.

For this reason, the tension of the parallel motion bands of the PARAGON JR. is permanently adjusted at the factory and requires no further attention during the life of the instrument. This adjustment is protected by the K&E "open center" arm construction, and cannot be disturbed except by severe accident.

The "open center" arm principle is simple but very important. As on all PARAGON parallel arm drafting machines, the parallel motion bands are contained in pairs of rigid tubes—the center of each arm is completely open. When the arms of the machine are warped or twisted, (as they must be when the head of the machine is lifted,) the center dimension actually decreases, while the rigid tubes that establish the band dimensions naturally remain the same length in any plane. In short, warping the arms cannot affect the band tension. Once it is set at the factory it need never be changed.

MOUNTING TO BOARD

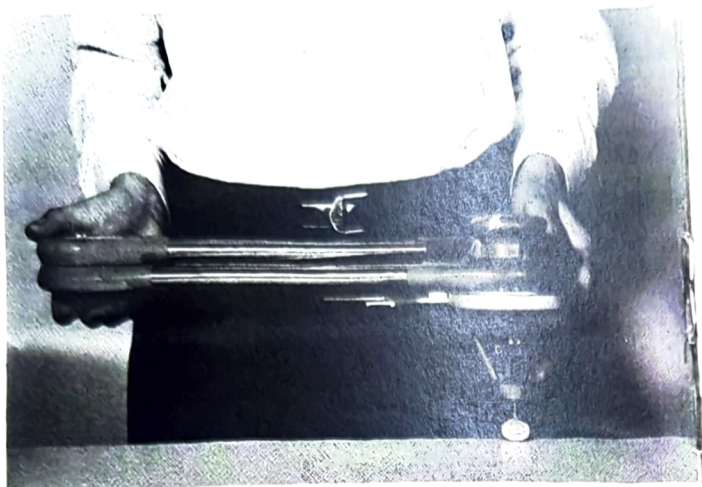


FIG. 1

1. Hold the machine as illustrated in Fig. 1, and place the anchor clamp over top edge of the board.
2. Position machine so that the elbow does not extend beyond the side of the board.
3. With the face of the anchor flush against top edge of the board, tighten clamp screw to hold it in position. Your machine is now correctly mounted.

PERMANENT MOUNTING



FIG. 2

For permanent installation, the anchor plate can be fastened to the board by means of two wood screws furnished with the machine. The holes for these screws are located in the anchor plate underneath the rubber protective cover.

To mount:

1. Mount machine as described above.
2. Remove rubber cover. (The cover is cemented in place but readily removed by pulling upward at edge.) The screw holes are now exposed. See Fig. 2.
3. Secure in place with wood screws provided.
4. Replace protective cover. If necessary, cement in place using any commercial rubber cement.

ADJUSTMENTS

INSERTING SCALES

PARAGON JR. Drafting Machines Scales are fitted with metal chuck plates at either end. These plates dovetail snugly into slots in the scale arms of the protractor head. See Fig. 3.

To insert,

1. Place the scale on the drawing board with the upper surface of the "chuck plate" flush against the bottom of the scale arm.
2. Slide the scale inward until the chuck plate firmly engages the scale arm groove.

To remove,

A Frisco Scale Remover, furnished with the PARAGON JR. Drafting Machine, should be used when removing scales.

Place the hole in the wrench over the "chuck plate" lock screw and turn the wrench slightly so that the cam acts against the edge of the scale arm.

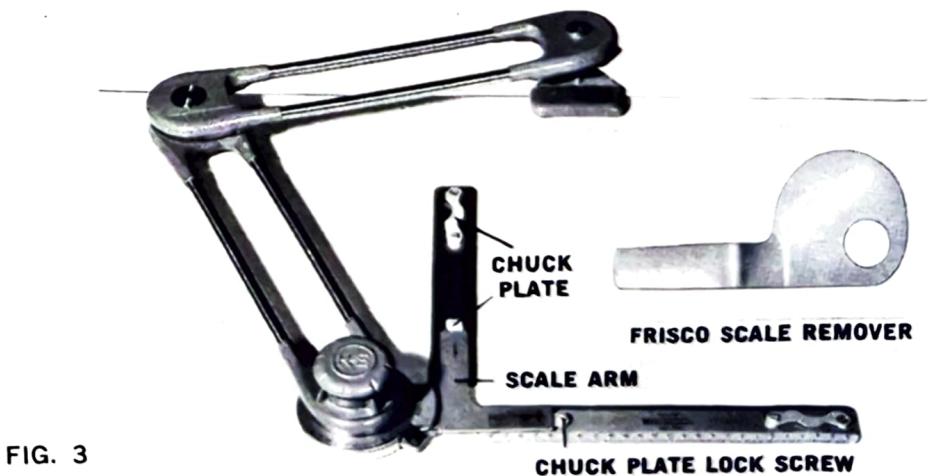


FIG. 3

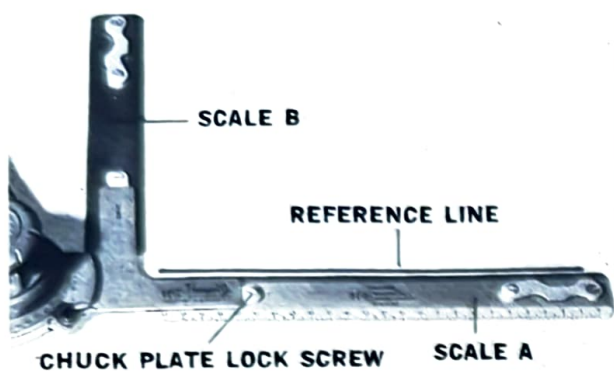


FIG. 4

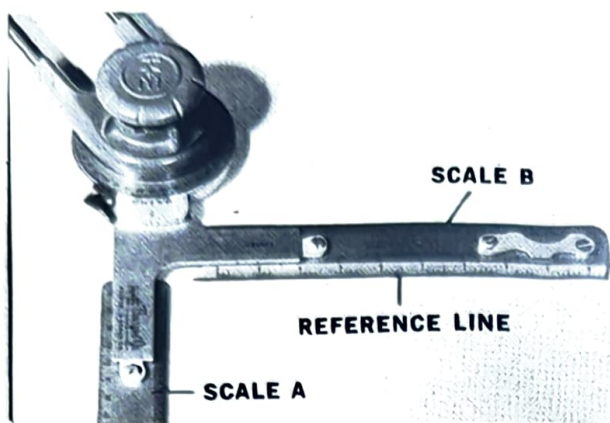


FIG. 5

SETTING THE SCALES

After inserting the scales, they must be set perpendicular to each other. This adjustment is important and should be checked periodically.

1. Set protractor head at "0" using the automatic stop.
2. Loosen the chuck plate lock screw on scale A with the Frisco Scale Remover. Adjust the scale approximately in the center of its "up and down" movement. Tighten lock screw.
3. Draw a reference line along the upper edge of scale A. See Fig. 4.
4. With the Scale Remover, remove scale A. Reverse it end for end, and loosen the other chuck plate lock screw. Adjust the scale edge to the reference line drawn in step 3.
5. Rotate the protractor head 90° clockwise using the automatic stop. See Fig. 5.
6. Adjust both chuck plates on scale B so that the scale edges line up with the reference line drawn in step 3.

The scales are now perpendicular to each other.

LEVELING THE SCALES



FIG. 6

Just enough flexibility has been provided between the lower arms and the head of the PARAGON JR. Drafting Machine so that the scales will automatically lie flat.

If at any time the scales of your machine do not lie flat upon the board, pick up the head of the instrument and "twist" it slightly until both scales make perfect contact with the drawing surface. See Fig. 6.

BASE LINE ADJUSTMENT

The range of the base line adjustment is a full 180°. Regardless of the angle of the reference line or center line on the drawing, the scales can be aligned to it—still retaining the “0” setting between the vernier and the protractor.

To Adjust the Baseline:

1. Set the vernier to “0” on the protractor using the automatic stop.
2. Loosen the Base Line Lock Lever (see Fig. 7). This allows both scales to rotate as a unit.
3. Align the horizontal scale with the lower edge of the board (see Fig. 8), or any established reference or center line.
4. Retighten Base Line Lock Lever. The machine will now operate from the new baseline.



FIG. 7

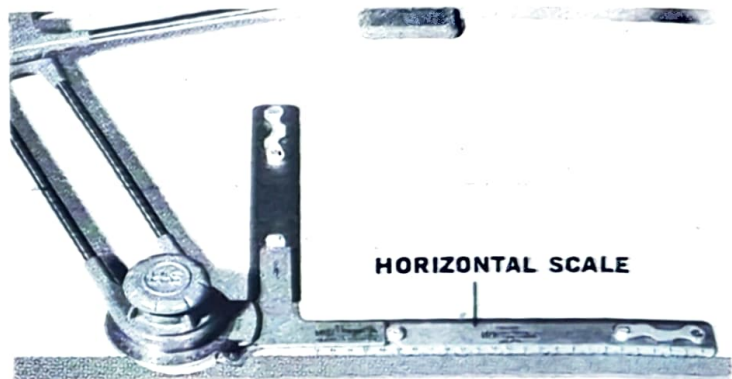


FIG. 8

PARKING

Once installed, the PARAGON JR. Drafting Machine need never be taken off the drawing board.

When you want to change the drawing, dust the board, or work with instruments, you merely set the head of the machine on the rubber covered anchor plate (see Fig. 9). The machine is now out of the way until you want to use it again.

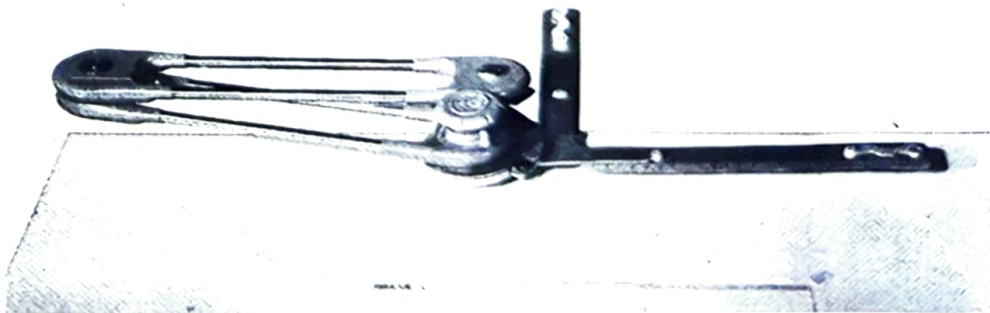


FIG. 9

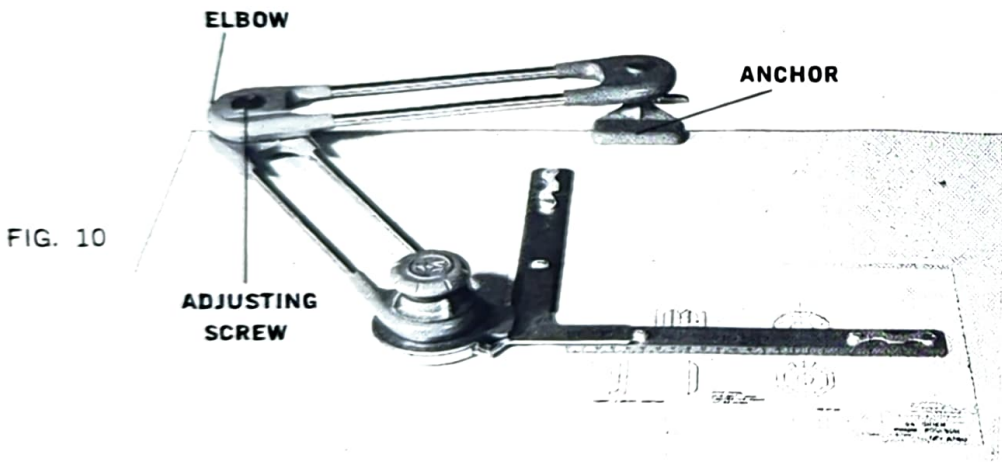
ADJUSTMENT FOR INCLINED BOARDS

Fig. 10 shows the PARAGON JR. correctly mounted and ready for use. Note that the anchor is just far enough from the end of the board to prevent the elbow from projecting past the edge.

The PARAGON JR. is factory adjusted so that it is ready for use on horizontal boards. If the machine is to be used on boards inclined at any angle up to 20° , the machine may have a tendency to slide downward. This is easily corrected by adjusting the built-in braking mechanism contained in the elbow. Proceed as follows:

1. Insert the curved edge of the Frisco Scale Remover (or a coin) into the slot of the adjusting screw.
2. Turn adjusting screw clockwise until the machine stays in position.

If the board is repositioned towards the horizontal, the braking mechanism should be released. To do this, turn adjusting screw in a counter clockwise direction until the machine works freely.



DRAFTING MACHINE SCALES

PARAGON SCALES are made of finest quality boxwood, carefully seasoned and selected, with engine divided graduations on white Xylonite facings.

NATURAL ANODIZED ALUMINUM SCALES are not affected by atmospheric changes. They offer the advantages of extreme rigidity and exceptionally long life. The graduations are engine divided.

LUXYLITE TRANSPARENT PLASTIC SCALES have a high degree of dimensional stability. The graduations are engine divided on the **under** side of the scale; thus, being close to the **drawing** surface, they avoid **parallax** errors.

SCALES for PARAGON® Drafting Machines

When ordering, specify product number and style of graduation desired.

Graduation of Scale		Style of Graduation	PARAGON®			ALUMINUM			LUXYLITE™		
			60 0509	60 0512	60 0518	60 0609	60 0612	60 0618	60 0709	60 0712	60 0718
1st Edge	2nd Edge		9" long	12" long	18" long	9" long	12" long	18" long	9" long	12" long	18" long
1/8 & 1/4 in. to 1 ft.	1/2 & 1 in. to 1 ft.	1	X	X	X	X	X	X	X	X	X
3/8 & 3/4 in. to 1 ft.	1 1/2 & 3 in. to 1 ft.	2	X	X	X	X	X	X		X	X
1/8 in. to 1 ft.	1/4 in. to 1 ft.	7		X	X		X	X		X	X
3/8 in. to 1 ft.	3/4 in. to 1 ft.	8		X	X		X	X			
1/2 in. to 1 ft.	1 in. to 1 ft.	9		X	X		X	X		X	X
1 1/2 in. to 1 ft.	3 in. to 1 ft.	10		X	X		X	X			
10 parts to 1 in.	50 parts to 1 in.	15		X	X		X	X		X	X
20 parts to 1 in.	40 parts to 1 in.	16		X	X					X	X
30 parts to 1 in.	60 parts to 1 in.	17		X	X					X	X
Full size to 1/50 in.*	Full size to 1/32 in.	19	X	X	X	X	X	X	X	X	X
Full size to 1/32 in.	1/4 size to 1/8 in.	20		X	X		X	X		X	X
Half size to 1/16 in.											
Full size to 1/16 in.	Half size to 1/16 in.	22	X	X	X	X	X	X	X	X	X
Full size to 1/32 in.	Half size to 1/16 in.	23	X	X	X	X	X	X	X	X	X
Full size to 1/50 in.*	Half size to 1/10 in.	24		X†	X†					X	X
Millimeters	Half size to 1 mm.	25	X	X	X	X				X	X

STRAIGHTEDGES

ungraduated with two
chuck plates

Length
12" 60 0812
18" 60 0818
18" 60 0819**
24" 60 0824

Paragon†

Luxylite
60 0912
60 0918

*Scale graduations approved by the American Standards Association, in conference with the Society of Automotive Engineers and others. Each 1/10 in. is divided into 1/5 in. by four lines, the second and third of which are longer than the first and fourth.

†American Standards Association Style K.

‡These straightedges are maple with transparent Luxylite edges.

**For use with LEROY® Lettering Templates.

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